[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2020-0901; Project Identifier AD-2020-00705-E]

RIN 2120-AA64

Airworthiness Directives; Pratt & Whitney Division Turbofan Engines

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: The FAA proposes to adopt a new airworthiness directive (AD) for certain Pratt & Whitney Division (PW) PW4164, PW4164-1D, PW4168, PW4168-1D, PW4168A, PW4168A-1D, and PW4170 model turbofan engines. This AD was prompted by several reports of low pressure turbine (LPT) 4th stage vane cluster assemblies leaning back and notching into the rotating LPT 4th stage blades, causing some blades to fracture and release. An investigation by the manufacturer into those reports determined that the leaning back of the LPT 4th stage vane cluster assemblies was caused by damage to the LPT 4th stage air sealing ring segment assemblies. This proposed AD would require initial and repetitive replacements of the LPT 4th stage air sealing ring segment assemblies with parts eligible for installation. This proposed AD would also require initial and repetitive dimensional inspections of the LPT case for bulging and, depending on the results of the dimensional inspection, repair or replacement of the LPT case. The FAA is proposing this AD to address the unsafe condition on these products.

DATES: The FAA must receive comments on this proposed AD by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: You may send comments, using the procedures found in 14 CFR 11.43 and 11.45, by any of the following methods:

• Federal eRulemaking Portal: Go to https://www.regulations.gov. Follow the instructions for submitting comments.

• Fax: 202-493-2251.

• Mail: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE, Washington, DC 20590.

• Hand Delivery: Deliver to Mail address above between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

For service information identified in this NPRM, contact Pratt & Whitney Division, 400 Main Street, East Hartford, CT 06118; phone: (800) 565-0140; email: help24@pw.utc.com; website: http://fleetcare.pw.utc.com. You may view this service information at the FAA, Airworthiness Products Section, Operational Safety Branch, 1200 District Avenue, Burlington, MA 01803. For information on the availability of this material at the FAA, call 781-238-7759.

Examining the AD Docket

You may examine the AD docket on the internet at https://www.regulations.gov by searching for and locating Docket No. FAA-2020-0901; or in person at Docket Operations between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this NPRM, any comments received, and other information. The street address for Docket Operations is listed above.

FOR FURTHER INFORMATION CONTACT: Carol Nguyen, Aerospace Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803; phone: (781) 238-7655; fax: (781) 238-7199; email: carol.nguyen@faa.gov.

SUPPLEMENTARY INFORMATION:

Comments Invited

The FAA invites you to send any written relevant data, views, or arguments about this proposal. Send your comments to an address listed under the ADDRESSES section. Include "Docket No. FAA-2020-0901; Project Identifier AD-2020-00705-E" at the beginning of your comments. The most helpful comments reference a specific portion of the proposal, explain the reason for any recommended change, and include supporting data. The FAA will consider all comments received by the closing date and may amend this proposal because of those comments.

Except for Confidential Business Information as described in the following paragraph, and other information as described in 14 CFR 11.35, the FAA will post all comments received, without change, to https://www.regulations.gov, including any personal information you provide. The FAA will also post a report summarizing each substantive verbal contact received about this proposal.

Confidential Business Information

Confidential Business Information (CBI) is commercial or financial information that is both customarily and actually treated as private by its owner. Under the Freedom of Information Act (FOIA) (5 U.S.C. 552), CBI is exempt from public disclosure. If your comments responsive to this NPRM contain commercial or financial information that is customarily treated as private, that you actually treat as private, and that is relevant or responsive to this NPRM, it is important that you clearly designate the submitted comments as CBI. Please mark each page of your submission containing CBI as "PROPIN." The FAA will treat such marked submissions as confidential under the FOIA, and they will not be placed in the public docket of this NPRM. Submissions containing CBI should be sent to Carol Nguyen, Aerospace Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803. Any commentary that the FAA receives which

is not specifically designated as CBI will be placed in the public docket for this rulemaking.

Background

The FAA received 6 reports from the manufacturer concerning LPT 4th stage vane cluster assemblies leaning back and notching into rotating LPT 4th stage blades, causing some blades to fracture and release. These incidents resulted in an aborted takeoff, air turnbacks, engine surges, high vibrations, and unplanned engine removals. The incidents were attributed to the LPT 4th stage air sealing ring segment assemblies moving into the LPT 4th stage blades knife edge seals, resulting in damage to the ring segment assemblies. As a result of this damage, gas-path air escapes and impinges on the LPT case. This can distort (create local bulging) the LPT case rail, causing the LPT 4th stage vanes to lean back and contact the LPT 4th stage blades. This condition, if not addressed, could result in uncontained release of LPT 4th stage blades, damage to the engine, and damage to the airplane.

FAA's Determination

The FAA is proposing this AD because the agency evaluated all the relevant information and determined the unsafe condition described previously is likely to exist or develop in other products of the same type design.

Service Information Incorporated by Reference under 1 CFR part 51

The FAA reviewed PW Alert Service Bulletin (ASB) No. PW4G-100-A72-262, revision No. 1, dated September 3, 2020. The ASB describes procedures for replacing the LPT 4th stage air sealing ring segment assemblies and inspecting the LPT case for bulging. This service information is reasonably available because the interested parties have access to it through their normal course of business or by the means identified in the ADDRESSES section.

Proposed AD Requirements

This proposed AD would require initial and repetitive replacement of the LPT 4th stage air sealing ring segment assemblies with parts eligible for installation. This proposed AD would also require initial and repetitive dimensional inspections of the LPT case for bulging and, depending on the results of the dimensional inspection, repair or replacement of the LPT case.

Costs of Compliance

The FAA estimates that this AD, as proposed, would affect 99 engines installed on airplanes of U.S. registry.

The FAA estimates the following costs to comply with this proposed AD:

Estimated costs

Action	Labor Cost	Parts Cost	Cost per product	Cost on U.S. operators
LPT case dimensional inspection	2 work-hours x $85 per hour = $170	$0	$170	$16,830
Replace the LPT 4th stage air sealing ring segment assemblies	50 work-hours x $85 per hour = $4,250	$64,592	$68,842	$6,815,358

The FAA estimates the following costs to perform necessary repair or replacement that would be required based on the results of the proposed dimensional inspection. The FAA has no way of determining how many engines will need to repair or replace the LPT case.

On-condition costs

Action	Labor Cost	Parts Cost	Cost per product
LPT case repair to restore dimensions	250 work-hours x $85 per hour = $21,250	$0	$21,250
Replace the LPT case	0 work-hours x $85 per hour = $0	$1,300,000	$1,300,000

Authority for this Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. Subtitle VII: "Aviation Programs" describes in more detail the scope of the Agency's authority.

The FAA is issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701: General requirements. Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

Regulatory Findings

The FAA determined that this proposed AD would not have federalism implications under Executive Order 13132. This proposed AD would not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify this proposed regulation:

(1) Is not a "significant regulatory action" under Executive Order 12866,

(2) Will not affect intrastate aviation in Alaska, and

(3) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

The Proposed Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA proposes to amend 14 CFR part 39 as follows:

PART 39 - AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

2. The FAA amends § 39.13 by adding the following new airworthiness directive (AD):

Pratt & Whitney Division: Docket No. FAA-2020-0901; Project Identifier AD-2020-00705-E.

(a) Comments Due Date

The FAA must receive comments on this airworthiness directive (AD) by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE Federal Register].

(b) Affected ADs

None.

(c) Applicability

This AD applies to Pratt & Whitney Division (PW) PW4164, PW4164-1D, PW4168, PW4168-1D, PW4168A, PW4168A-1D, and PW4170 model turbofan engines with low pressure turbine (LPT) 4th stage air sealing ring segment assemblies, part number (P/N) 50N463-01 or P/N 50N526-1, installed.

(d) Subject

Joint Aircraft System Component (JASC) Code 7250, Turbine Section.

(e) Unsafe Condition

This AD was prompted by several reports from the manufacturer concerning LPT 4th stage vane cluster assemblies leaning back and notching into the rotating LPT 4th

stage blades, causing some blades to fracture and release. A manufacturer investigation into those reports determined that the leaning back of the LPT 4th stage vane cluster assemblies was caused by damage to the LPT 4th stage air sealing ring segment assemblies. The FAA is issuing this AD to prevent damage to the LPT 4th stage air sealing ring segment assemblies, the LPT case, and the LPT 4th stage blades. The unsafe condition, if not addressed, could result in uncontained release of the LPT 4th stage blades, damage to the engine, and damage to the airplane.

(f) Compliance

Comply with this AD within the compliance times specified, unless already done.

(g) Required Actions

(1) For affected engines that have either the Talon IIA outer combustion chamber assembly, part number (P/N) 51J100 or P/N 51J382, or the Talon IIB outer combustion chamber assembly, P/N 51J381 or P/N 51J500, installed, at the next engine shop visit after the effective date of this AD, remove from service the LPT 4th stage air sealing ring segment assemblies, P/N 50N463-01 or P/N 50N526-01, and replace with parts eligible for installation.

(2) For affected engines not referenced in paragraph (g)(1) of this AD, at the next LPT overhaul after the effective date of this AD, remove from service the LPT 4th stage air sealing ring segment assemblies, P/N 50N463-01 or P/N 50N526-01, and replace with parts eligible for installation.

(3) For all affected engines, at each LPT overhaul after compliance with the required actions in paragraphs (g)(1) or (g)(2) of this AD, remove from service the LPT 4th stage air sealing ring segment assemblies, P/N 50N526-01, and replace with parts eligible for installation.

(4) During each replacement of the LPT 4th stage air sealing ring segment assemblies required by paragraphs (g)(1), (g)(2), and (g)(3) of this AD, perform a

dimensional inspection of the LPT case for bulging in accordance with the Accomplishment Instructions, paragraph 2, of PW ASB PW4G-100-A72-262 revision No. 1, dated September 3, 2020 (“the ASB”).

(5) If, during the dimensional inspection of the LPT case required by paragraph (g)(4) of this AD, any LPT case is found to be outside the serviceable limits specified in Table 1: Serviceable Limits and Repairs of the ASB, repair or replace the LPT case before further flight.

(h) Definitions

For the purpose of this AD:

(1) An "engine shop visit" is the induction of an engine into the shop for maintenance involving the separation of pairs of major mating engine flanges (lettered flanges). The separation of engine flanges solely for the purpose of transportation without subsequent engine maintenance does not constitute an engine shop visit.

(2) An “LPT overhaul” is when the LPT rotor is removed from the engine, all four disks are removed from the LPT rotor, and all blades are removed from the disks.

(3) “Parts eligible for installation” are LPT 4th stage air sealing ring segment assemblies, P/N 50N526-01, with zero flight cycles since new or with a P/N not mentioned in this AD.

(i) Alternative Methods of Compliance (AMOCs)

(1) The Manager, ECO Branch, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to the manager of the certification office, send it to the attention of the person identified in paragraph (j)(1) of this AD. You may email your request to: ANE-AD-AMOC@faa.gov.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

(j) Related Information

(1) For more information about this AD, contact Carol Nguyen, Aerospace Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA, 01803; phone: (781) 238-7655; fax: (781) 238-7199; email: carol.nguyen@faa.gov.

(2) For service information identified in this AD, contact Pratt & Whitney Division, 400 Main Street, East Hartford, CT 06118; phone: (800) 565-0140; email: help24@pw.utc.com; website: http://fleetcare.pw.utc.com. You may view this referenced service information at the FAA, Airworthiness Products Section, Operational Safety Branch, 1200 District Avenue, Burlington, MA 01803. For information on the availability of this material at the FAA, call 781-238-7759.

Issued on September 25, 2020.

Lance T. Gant, Director,
Compliance & Airworthiness Division,
Aircraft Certification Service.

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